

FILE 9972 ~~SECRET~~

NPIC/P&DS/D/6-791  
15 February 1966

## MEMORANDUM FOR THE RECORD

SUBJECT: Trip Report: Visit to [redacted]  
[redacted] 7-8 February 1966 in

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PAR 243 "Briefing Print Enlarger Prototype".

[redacted] made a series of tests on the BPE. The first of these was at 10X and 40X for comparison of the BPE Enlarger and the 10-20-40 Enlarger. Tests were also made for best focus with the 40X lens and a test on Polycontrast Paper was also made with this lens. From the results of this test it would appear that for 40X on-axis the quality of the BPE Printer is, if anything, better than the 10-20-40 Printer.

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It was believed that the lead screw coefficient of expansion was affecting the optimum lens focus. A focus test run through the calculated position proved the lens to be correctly focused for the 40X lens. In fact, a shift in lens position of plus or minus 0.00156 inches had little or no effect on the image quality.

A test of the 10X lens at 1.4 inches of axis in the film gate which represented about 18 degrees off-axis at easel was much better than the 10X off-axis test made on the 10-20-40X Printer at about 5 degrees of axis which was the most attainable on that printer. An on-axis test of the BPE Printer at 10X showed that the off-axis loss in quality for 18 degrees was not great.

In the Polycontrast test, Kodabromide F2 Paper exposed by blue light at 110 volts with the 40X lens was compared with Polycontrast Paper exposed with white light (no filter) at 80 volts using the same lens. The results are quite comparable. This 1.25 inch lens is believed to have the poorest correction for Polycontrast Paper; the other lenses having been corrected for white light or color printing.

Note the enclosures for all tests mentioned above:

Enclosure (1)  
BPE vs 10-20-40 comparison at 40X.

Enclosure (2)  
Focus test on BPE.

Enclosure (3)  
BPE vs 10-20-40 comparison at 10X off axis.

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In discussions concerning the BPE [ ] pointed out that [ ] desires to close out the project PAR 202/224. Any further testing costs would subsequently be charged to the new PAR 243. This was concurred in by [ ] since the remaining tests (polycontrast filters) could be considered as engineering requirements for the prototype. The "breadboard" will probably be dismantled after a series of "polycontrast" tests and color film tests are completed. The results of these tests will be sent to NPIC.

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The revised proposal for PAR 243 will be completed in about six weeks (about 18 March) and will incorporate all items agreed upon in previous meetings plus an additional feature, a method to interchange filter wheels in the lamphouse. A specification agreement will be attached to the proposal listing certain engineering and operational criteria that the prototype will contain and the quality of the product it will produce.

The approximate cost of the prototype remains [ ] however, because of the additional refinements this will probably change to some degree. A firmer figure can be made several months hence.

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Delievery date of the prototype is estimated to be 15 March 1967.

Inquiry was made [ ] as to the interest of the community in ordering prototypes during the next several months. (As opposed to waiting and ordering "production" models in view of the long lead time and manufacturing time.) It was pointed out by [ ] that there was probably little desire to pay the price of another prototype (about [ ] plus lens costs), that there was more interest in seeing the operational prototype first in spite of the immediate requirements for such a device. It is recommended that this question, however, be posed to members of COPE after receipt of PAR 243 and the specifications at NPIC. Three years is a long time to wait for a production model!

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Prior to the dismantling of the breadboard BPE, [ ] will attempt to make tests with color prints and send these demonstration print samples to NPIC.

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Prospective PAR 245 "60X-160X Lens System for BPE".

Decisions on the types of lenses to be used will be made after final tests of the present lens system are made on the breadboard BPE. It can be reasonably estimated, however, that the lens system will be selected and designed for use of B&W only. The proposal should be ready in about six weeks. It is planned that development will run parallel and relatively independent to the development of the prototype BPE. The design phase should be completed about October 1966. The lens assembly should be ready about June 1967. Cost estimates are not yet available.

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**SECRET**PAR 244 "Spare Parts for RT-12 and RT-24".

A selection and listing of spare parts by NPIC should be made and itemized. [ ] is awaiting such an order in response to the recommended spare parts list already sent to NPIC, (totalling about [ ]). NPIC's list would be based upon the degree and intensity of use of the devices.

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25X1PAR 242 "Color Demonstration Materials".

The materials are scheduled to be delivered to NPIC the last week of March 1966. When received at NPIC the PAR will have been completed. No final report or evaluation is required.

PAR 207 "Contact Printer Study".

The final report has been completed in the rough at [ ] and should be received at NPIC by the last week of February.

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PAR 239 "Administrative Costs".

This PAR will be closed out soon and administrative costs will be charged to the individual PAR concerned.

PAR 238 "Installation of Equipment".

This PAR was set up primarily for the installation of RT-12 and RT-24 (Roller Processors). It will be discontinued after funds have been expended. Current use for the remaining funds will include costs of tab experiments for the RT-24, and costs of the rollers and racks changes in the RT-12.

PAR 233 "Zoom (6x-60x) Projection Lens".

The lens designer has met with problems in design that will require a visit by [ ]. In the most acceptable approach, it was found that a 6 to 8 inch glass path was required, also requiring a high-index glass to be used. This causes a very low transmittance-- 2%-10%! The designer has asked for more cataloging data, but even so is pessimistic. Will we accept this low transmittance? The designer would also like to know what the light amplification would be and also what the screen gain would be since these two factors might provide the solution to the transmittance problem. (Mercury arc source 365 milli-micron.)

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Three approaches to the requirement are:

1. Single zoom. (Does not appear workable.)

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2. Two-zoom system in sequence, 6x-10x and 10x-60x.
3. Three fixed lenses with two-zoom system that work together

PAR 214 (RT-12) "12-Inch Roller Transport".

Testing has been completed on roller materials to be used to solve the problems of the "pinholes". All racks in chemical will be changed. The fourteen rollers (on emulsion facing side) will be changed on each rack, (total about 476 rollers).

The roller material selected for use will be of the original Kralastic material faced with an extruded polyethylene sleeve. The rollers should be ready by 15 March and installation should be completed at NPIC during April. The cost is estimated to be under [ ] and will come from installation funds already authorized. [ ] proposes that the RT-12 be empty and washed down in preparation for the installation of the rollers, which will be accomplished on site, (at NPIC).

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PAR 215 (RT-24) "24-Inch Paper Processor".

Samples of a tab system was shown by [ ] utilizing a pre-prepared tab assembly with a narrow tape. By peeling off the paper side of the tape the top sticky side would be fastened to the paper. Tab and tape would then be pulled off at the dryer assembly with a minimum of tearing and little if any wrinkling. It was suggested that, if such a method is used, a local paper company could prepare tab and tape in large quantities for use. (No consideration given for cost of such a venture.) Samples of this system will be made up by [ ] and a representative will arrive at NPIC early on 15 February to run the tabs through. It would appear that this might be the last attempt to solve the tape-tab problem--at NPIC's choice.

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If the above described system is acceptable, NPIC could also consider a new proposal (new PAR) for plans and fabrication of a simple feed table and guide strip to be installed at the feed-end of the processor. [ ] will not propose on such an addition unless NPIC requests and states the requirements. No definite design for such a table has been conjured up [ ] (A simple rig, for lining-up the sticky edge with the paper is another item which should be considered during experiments. It is suggested that the P&DS Maintenance Section be considered to do this.)

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[ ] was informed that the out-put of the RT-24 was only about one-third that of the present tray method in use. The possibility of future use of the machine for roll paper was discussed--realistically, such use now would not be possible.

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It is recommended that the RT-24 be considered to be used for cut-film processing instead of paper processing. This would require testing, and change of chemical, timing, and heat control. If considered feasible, it is then recommended that some commercial Orthofilm be run through the machine as soon as possible to check on the "pinhole" problem. Is it possible to do this on 15 February when checking out the tab problem?

If the "pinhole" problem is acute and a roller change is in order, it would take about two months to manufacture the 24-inch rollers of the same make-up as those in the RT-12. Costs would be around  and would be a new PAR, (change in scope).

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